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## Comparison Of Clinical Outcomes Between Minimally Invasive (laparoscopic And Robotic) And Open Extended Cholecystectomy

<u>Hee Ju SOHN</u><sup>1</sup>, Hongbeom KIM\*<sup>1</sup>, Mirang LEE<sup>1</sup>, Yoon Hyung KANG<sup>1</sup>, Wooil KWON<sup>1</sup>, Jun Suh LEE<sup>1</sup>, Yoo-Seok YOON<sup>1</sup>, Ho-Seong HAN<sup>1</sup>, Chang Sup LIM<sup>1</sup>, Jin-Young JANG<sup>1</sup>

<sup>1</sup>Department Of Surgery, Seoul National University Hospital, REPUBLIC OF KOREA

**Background** : Minimally invasive surgery (MIS), both laparoscopic and robotic surgery for gallbladder cancer (GBC) has rapidly increased recently, however, there is a lack of large multicenter studies of its safety and long-term outcome. This study was undertaken to determine the feasibility of MIS-extended cholecystectomy for GBC and compare it with conventional open surgery.

**Methods** : Patients diagnosed with clinically suspected GBC who underwent extended cholecystectomy (EC) from 2007 to 2020 in 3 large volume hepatobiliary centers were studied. EC was defined as a wedge resection of liver bed including cholecystectomy and regional lymphadenectomy. Clinicopathologic data of O-EC and MIS-EC was analyzed and propensity score matching was performed to compare the short-term and long-term outcomes. Subgroup analysis of laparoscopic and robotic surgery was evaluated.

**Results** : A total of 377 patients were included, O-EC and MIS-EC group (laparoscopic EC: 40, robotic EC: 29) were 308 and 69 patients, respectively. Though MIS-EC group had a longer operative time (188.9 vs 238.1 minutes, p < 0.001), shorter length of hospital stay (9.0 vs7.2 days, p = 0.007), there was no difference in operative blood loss, complication rate, 30-day mortality rate. More lymph nodes were retrieved in O-EC (8.5 vs 7.1, p = 0.044) and there was no significant difference in 3-year overall survival. In subgroup analysis of MIS-EC, laparoscopic EC had longer operative time (264.4 vs 202.0 min, p = 0.001), however, other perioperative outcomes and 3-year survival outcomes were comparable.

**Conclusions** : MIS-EC is feasible with advantages of decreased length of stay and comparable survival to O-EC in GBC. Both laparoscopic and robotic EC had comparable perioperative and oncologic outcomes so it can be chosen according to the preference of the surgeon.

Corresponding Author : Hongbeom KIM (surgeonkhb@gmail.com)